

10/577973

SEQUENCE LISTING

APP20 RECEIVED 03 MAY 2006

<110> Ensoli, Barbara
Caputo, Antonella
Laus, Michele
Tondelli, Luisa
Sparnacci, Katia

<120> Nanoparticles for Delivery of a Pharmacologically Active Agent

<130> 50318/013001

<150> PCT/EP2004/012420

<151> 2004-11-03

<150> GB 0325625.2

<151> 2003-11-03

<160> 40

<170> PatentIn version 3.3

<210> 1

<211> 309

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(309)

<400> 1

atg gag cca gta gat cct cgt cta gag ccc tgg aag cat cca gga agt
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

48

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Cys Cys Phe
20 25 30

96

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tac ggc
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

144

agg aag aag cgg aga cag cgt cga aga cct cct caa ggc agt cag act
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

192

cat caa gtt tct cta tca aag caa ccc acc tcc caa tcc cga ggg gac
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

240

ccg aca ggc ccg aag gaa cag aag aag gtg gag aga gag aca gag
Pro Thr Gly Pro Lys Glu Gln Lys Lys Val Glu Arg Glu Thr Glu
85 90 95

288

aca gat ccg gtc cat cag tga
Thr Asp Pro Val His Gln
100

309

<210> 2
<211> 102
<212> PRT
<213> Human immunodeficiency virus

<400> 2

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu Gln Lys Lys Val Glu Arg Glu Thr Glu
85 90 95

Thr Asp Pro Val His Gln
100

<210> 3
<211> 261
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)...(261)

<400> 3
atg gag cca gta gat cct cgt cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Cys Cys Phe

20	25	30	
cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tac ggc			144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly			
35	40	45	
agg aag aag cgg aga cag cgt cga aga cct cct caa ggc agt cag act			192
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr			
50	55	60	
cat caa gtt tct cta tca aag caa ccc acc tcc caa tcc cga ggg gac			240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp			
65	70	75	80
ccg aca ggc ccg aag gaa tag			261
Pro Thr Gly Pro Lys Glu			
85			
<210> 4			
<211> 86			
<212> PRT			
<213> Human immunodeficiency virus			
<400> 4			
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser			
1	5	10	15
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe			
20	25	30	
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly			
35	40	45	
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr			
50	55	60	
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp			
65	70	75	80
Pro Thr Gly Pro Lys Glu			
85			
<210> 5			
<211> 261			
<212> DNA			
<213> Human immunodeficiency virus			

<221> CDS
<222> (1)..(261)

<400> 5
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aaa act gct acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac 240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

<210> 6
<211> 86
<212> PRT
<213> Human immunodeficiency virus

<400> 6

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser 6
1 5 10 15

Gln Pro Lys Thr Ala Gly Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu

<210> 7
 <211> 261
 <212> DNA
 <213> Human immunodeficiency virus

<220>
 <221> CDS
 <222> (1)..(261)

<400> 7

atg	gag	cca	gta	gat	cct	aga	cta	gag	ccc	tgg	aag	cat	cca	gga	agt	48
Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser	
1					5				10			15				

cag cct aaa act gct tat acc aat tgc tat tgt aaa aag tgt tgc ttt

Gln	Pro	Lys	Thr	Ala	Cys	Thr	Asn	Cys	Tyr	Cys	Lys	Lys	Cys	Cys	Phe	96
20						25				30						

cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc

His	Cys	Gln	Val	Cys	Phe	Ile	Thr	Ala	Ala	Leu	Gly	Ile	Ser	Tyr	Gly	144
35					40					45						

agg aag aag cgg aga cag cga aga cct cct caa ggc agt cag act

Arg	Lys	Lys	Arg	Arg	Gln	Arg	Arg	Pro	Pro	Gln	Gly	Ser	Gln	Thr	192
50					55				60						

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc cga ggg gac

His	Gln	Val	Ser	Leu	Ser	Lys	Gln	Pro	Thr	Ser	Gln	Ser	Arg	Gly	Asp	240
65					70			75		80						

ccg aca ggc ccg aag gaa tag

Pro	Thr	Gly	Pro	Lys	Glu										261
					85										

<210> 8
 <211> 86
 <212> PRT
 <213> Human immunodeficiency virus

<400> 8

Met	Glu	Pro	Val	Asp	Pro	Arg	Leu	Glu	Pro	Trp	Lys	His	Pro	Gly	Ser	
1					5				10			15				

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe

20				25				30								
----	--	--	--	----	--	--	--	----	--	--	--	--	--	--	--	--

His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly

35				40				45								
----	--	--	--	----	--	--	--	----	--	--	--	--	--	--	--	--

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu
85

<210> 9
<211> 252
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(252)

<400> 9
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

cat tgc caa gtt tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc 240
His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
65 70 75 80

ccg aag gaa tag 252
Pro Lys Glu

<210> 10
<211> 83
<212> PRT
<213> Human immunodeficiency virus

<400> 10

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser

1

5

10

15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
 65 70 75 80

Pro Lys Glu

<210> 11

<211> 252

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(252)

<400> 11

atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
 Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

cag cct aaa act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
 Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Cys Cys Phe
 20 25 30

cat tgc caa gtt tgt ttc ata aca gct gcc tta ggc atc tcc tat ggc 144
 His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

agg aag aag cgg aga cag cga cga aga cct cct caa ggc agt cag act 192
 Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

cat caa gtt tct cta tca aag cag ccc acc tcc caa tcc ccg aca ggc 240
 His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
 65 70 75 80

ccg aag gaa tag 252
 Pro Lys Glu

<210> 12
<211> 83
<212> PRT
<213> Human immunodeficiency virus

<400> 12

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Ala Ala Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Pro Thr Gly
65 70 75 80

Pro Lys Glu

<210> 13
<211> 306
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(306)

<400> 13
atg gat cca gta gat cct aac cta gag ccc tgg aac cat ccg gga agt 48
Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aca act gct aac aag tgt tac tgt aaa aag tgt tgc tat 96
Gln Pro Thr Thr Ala Cys Asn Lys Cys Tyr Cys Lys Cys Cys Tyr
20 25 30

cat tgc caa gtt tgc ttt ctg aac aaa ggc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga cga gga act cct cag agc agt aag gat 192

Arg Lys Lys Arg Arg Gln Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60

cat caa aat cct ata cca aag caa ccc ata ccc caa acc caa ggg gtc 240
His Gln Asn Pro Ile Pro Lys Gln Pro Ile Pro Gln Thr Gln Gly Val
65 70 75 80

tcg aca ggc ccg gaa gaa tcg aag aag gtg gag agc aag gca gag 288
Ser Thr Gly Pro Glu Glu Ser Lys Lys Val Glu Ser Lys Ala Glu
85 90 95

aca gat cga ttc gat tag 306
Thr Asp Arg Phe Asp
100

<210> 14
<211> 101
<212> PRT
<213> Human immunodeficiency virus

<400> 14

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Thr Thr Ala Cys Asn Lys Cys Tyr Cys Lys Lys Cys Cys Tyr
20 25 30

His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60

His Gln Asn Pro Ile Pro Lys Gln Pro Ile Pro Gln Thr Gln Gly Val
65 70 75 80

Ser Thr Gly Pro Glu Glu Ser Lys Lys Val Glu Ser Lys Ala Glu
85 90 95

Thr Asp Arg Phe Asp
100

<210> 15
<211> 306
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(306)

<400> 15
atg gag cca gta gat cct aga cta gag ccc tgg aag cat cca gga agt 48
Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

cag cct aag act gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt 96
Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Cys Cys Phe
20 25 30

cat tgc caa gtt tgt ttc ata aca aaa ggc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga aga gct cct caa gac agt cag act 192
Arg Lys Lys Arg Arg Gln Arg Arg Ala Pro Gln Asp Ser Gln Thr
50 55 60

cat caa gtt tct cta tca aag caa ccc gcc tcc cag ccc cga ggg gac 240
His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp
65 70 75 80

ccg aca ggc ccg aag gaa tcg aag aag gtg gag aga gag aca gag 288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Val Glu Arg Glu Thr Glu
85 90 95

aca gat ccg gtc gat tag 306
Thr Asp Pro Val Asp
100

<210> 16
<211> 101
<212> PRT
<213> Human immunodeficiency virus

<400> 16

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser 7
1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Cys Cys Phe
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Ala Pro Gln Asp Ser Gln Thr
50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Ala Ser Gln Pro Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Val Glu Arg Glu Thr Glu
85 90 95

Thr Asp Pro Val Asp
100

<210> 17
<211> 306
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(306)

<400> 17
atg gag cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt 48
Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aaa act gct tgt aat aag tgt tat tgt aaa cac tgt agc tat 96
Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr
20 25 30

cat tgt cta gtt tgc ttt cag aca aaa ggc tta ggc att tcc tat ggc 144
His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aga cag cga cga agc gct cct cca agc agt gag gat 192
Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp
50 55 60

cat caa aat ctt ata tca aag caa ccc tta ccc caa acc caa ggg gac 240
His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp
65 70 75 80

ccg aca ggc tcg gaa gaa tcg aag aag gtg gag agc aag aca gag 288
Pro Thr Gly Ser Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu
85 90 95

aca gat cca ttc gat tag 306
Thr Asp Pro Phe Asp
100

<210> 18
<211> 101
<212> PRT
<213> Human immunodeficiency virus

<400> 18

Met Glu Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Asn Lys Cys Tyr Cys Lys His Cys Ser Tyr
20 25 30

His Cys Leu Val Cys Phe Gln Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Ser Ala Pro Pro Ser Ser Glu Asp
50 55 60

His Gln Asn Leu Ile Ser Lys Gln Pro Leu Pro Gln Thr Gln Gly Asp
65 70 75 80

Pro Thr Gly Ser Glu Glu Ser Lys Lys Lys Val Glu Ser Lys Thr Glu
85 90 95

Thr Asp Pro Phe Asp
100

<210> 19

<211> 261

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(261)

<400> 19

atg gat cca gta gat cct aac cta gag ccc tgg aac cat cca gga agt
Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15 48

cag cct agg act cct tgt aac aag tgt tat tgt aaa aag tgt tgc tat
Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Cys Cys Tyr
20 25 30 96

cat tgc caa gtt tgc ttc ata acg aaa ggc tta ggc atc tcc tat ggc
His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45 144

agg aag aag cgg aga cag cga cga aga cct cct caa ggc ggt cag gct
Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Gly Gln Ala
50 55 60 192

cat caa gat cct ata cca aag caa ccc tcc tcc cag ccc cga ggg gac 240
His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp
65 70 75 80

ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

<210> 20
<211> 86
<212> PRT
<213> Human immunodeficiency virus

<400> 20

Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser 15
1 5 10 15

Gln Pro Arg Thr Pro Cys Asn Lys Cys Tyr Cys Lys Cys Cys Tyr 30
20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Gly Leu Gly Ile Ser Tyr Gly 45
35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Gly Gln Ala 60
50 55 60

His Gln Asp Pro Ile Pro Lys Gln Pro Ser Ser Gln Pro Arg Gly Asp 80
65 70 75 80

Pro Thr Gly Pro Lys Glu
85

<210> 21
<211> 306
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(306)

<400> 21 48
atg gaa cta gta gat cct aac tta gat ccc tgg aac cat cca gga agc
Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aca act cct tgt acc aaa tgc tat tgt aaa agg tgt tgc ttt 96
Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe

20	25	30	
cat tgc caa tgg tgc ttt aca acg aag ggc tta ggc atc tcc tat ggc			144
His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly			
35	40	45	
agg aag aag cgg aga cag cga cga aga act cct caa agc agt cag ata			192
Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile			
50	55	60	
cat caa gat cct gta cca aag caa ccc tta tcc caa gcc cga ggg aac			240
His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn			
65	70	75	80
ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag gca aag			288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys			
85	90	95	
aca gat ccg tgc gat tag			306
Thr Asp Pro Cys Asp			
100			
<210> 22			
<211> 101			
<212> PRT			
<213> Human immunodeficiency virus			
<400> 22			
Met Glu Leu Val Asp Pro Asn Leu Asp Pro Trp Asn His Pro Gly Ser			
1	5	10	15
Gln Pro Thr Thr Pro Cys Thr Lys Cys Tyr Cys Lys Arg Cys Cys Phe			
20	25	30	
His Cys Gln Trp Cys Phe Thr Thr Lys Gly Leu Gly Ile Ser Tyr Gly			
35	40	45	
Arg Lys Lys Arg Arg Gln Arg Arg Arg Thr Pro Gln Ser Ser Gln Ile			
50	55	60	
His Gln Asp Pro Val Pro Lys Gln Pro Leu Ser Gln Ala Arg Gly Asn			
65	70	75	80
Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Ala Lys			
85	90	95	
Thr Asp Pro Cys Asp			
100			

<210> 23
<211> 306
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(306)

<400> 23
atg gac ccg gta gat cct aac cta gag ccc tgg aat cat ccg ggg agt 48
Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aaa act ccc tgt aac aaa tgt tat tgt aaa atg tgt tgc tgg 96
Gln Pro Lys Thr Pro Cys Asn Lys Cys Tyr Cys Lys Met Cys Cys Trp
20 25 30

cat tgt caa gtt tgc ttt ctg aac aaa ggc tta ggc atc tcc tat ggc 144
His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag ccg aag cac cga cga gga act cct cag agc agt aag gat 192
Arg Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60

cat caa aat cct gta cca aag caa ccc tta ccc acc acc aga ggg aac 240
His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
65 70 75 80

ccg aca ggc ccg aag gaa tcg aag aag gag gtg gag agc aag aca gag 288
Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Thr Glu
85 90 95

aca gat cca ttc gat tag 306
Thr Asp Pro Phe Asp
100

<210> 24
<211> 101
<212> PRT
<213> Human immunodeficiency virus

<400> 24
Met Asp Pro Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Pro Cys Asn Lys Cys Tyr Cys Lys Met Cys Cys Trp
20 25 30

His Cys Gln Val Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly

35

40

45

Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60

His Gln Asn Pro Val Pro Lys Gln Pro Leu Pro Thr Thr Arg Gly Asn
65 70 75 80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Glu Ser Lys Thr Glu
85 90 95

Thr Asp Pro Phe Asp
100

<210> 25

<211> 261

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(261)

<400> 25

atg gac cca gta gat cct aac caa gag ccc tgg aac cat cca gga agt 48
Met Asp Pro Val Asp Pro Asn Gln Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aaa act gct aac aat tgt tat tgt aaa aag tgc tgc tat 96
Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr
20 25 30

cat tgc caa ttg tgc ttt tta aag aaa ggc tta ggc att tcc tat ggc 144
His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg agc cag cga gga act cct gca agt ttg caa gat 192
Arg Lys Lys Arg Ser Gln Arg Arg Gly Thr Pro Ala Ser Leu Gln Asp
50 55 60

cat caa aat cct ata cca aag caa ccc tta tcc cga acc cgc ggg gac 240
His Gln Asn Pro Ile Pro Lys Gln Pro Leu Ser Arg Thr Arg Gly Asp
65 70 75 80

ccg aca ggc ccg aag gaa tag 261
Pro Thr Gly Pro Lys Glu
85

<210> 26

<211> 86

<212> PRT

<213> Human immunodeficiency virus

<400> 26

Met Asp Pro Val Asp Pro Asn Gln Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr Ala Cys Asn Asn Cys Tyr Cys Lys Lys Cys Cys Tyr
20 25 30

His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Ser Gln Arg Arg Gly Thr Pro Ala Ser Leu Gln Asp
50 55 60

His Gln Asn Pro Ile Pro Lys Gln Pro Leu Ser Arg Thr Arg Gly Asp
65 70 75 80

Pro Thr Gly Pro Lys Glu
85

<210> 27

<211> 306

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(306)

<400> 27

atg gag ctg gta gat cct aac cta gag ccc tgg aat cat ccg gga agt 48
Met Glu Leu Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

cag cct aca act gct tgt aag tgt tac tgt aaa ata tgt tgc tgg 96
Gln Pro Thr Thr Ala Cys Ser Lys Cys Tyr Cys Lys Ile Cys Cys Trp
20 25 30

cat tgc caa cta tgc ttt ctg aaa aaa ggc tta ggc atc tcc tat ggc 144
His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cgg aag cac cga cga gga act cct cag agc agt aag gat 192
Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp
50 55 60

cat caa aat cct ata cca gag caa ccc cta ccc atc atc aga ggg aac 240

His Gln Asn Pro Ile Pro Glu Gln Pro Leu Pro Ile Ile Arg Gly Asn			
65	70	75	80
ccg aca gac ccg aaa gaa tcg aag aag gag gtg gcg agc aag gca gag			288
Pro Thr Asp Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Ala Glu			
85	90	95	
aca gat ccg tgc gat tag			306
Thr Asp Pro Cys Asp			
100			
<210> 28			
<211> 101			
<212> PRT			
<213> Human immunodeficiency virus			
<400> 28			
Met Glu Leu Val Asp Pro Asn Leu Glu Pro Trp Asn His Pro Gly Ser			
1	5	10	15
Gln Pro Thr Thr Ala Cys Ser Lys Cys Tyr Cys Lys Ile Cys Cys Trp			
20	25	30	
His Cys Gln Leu Cys Phe Leu Lys Lys Gly Leu Gly Ile Ser Tyr Gly			
35	40	45	
Arg Lys Lys Arg Lys His Arg Arg Gly Thr Pro Gln Ser Ser Lys Asp			
50	55	60	
His Gln Asn Pro Ile Pro Glu Gln Pro Leu Pro Ile Ile Arg Gly Asn			
65	70	75	80
Pro Thr Asp Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Ala Glu			
85	90	95	
Thr Asp Pro Cys Asp			
100			
<210> 29			
<211> 306			
<212> DNA			
<213> Human immunodeficiency virus			
<220>			
<221> CDS			
<222> (1)..(306)			

<210> 30
<211> 101
<212> PRT
<213> Human immunodeficiency virus

<400> 30

Met Glu Pro Val Asp Pro Ser Leu Glu Pro Trp Asn His Pro Gly Ser
1 5 10 15

Gln Pro Thr Thr Ala Cys Ser Asn Cys Tyr Cys Lys Met Cys Cys Trp
20 25 30

His Cys Gln Leu Cys Phe Leu Asn Lys Gly Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Arg Arg Arg Gly Thr Pro Gln Ser Arg Gln Asp
50 55 60

His	Gln	Asn	Pro	Val	Pro	Lys	Gln	Pro	Leu	Pro	Thr	Thr	Arg	Gly	Asn
65					70					75					80

Pro Thr Gly Pro Lys Glu Ser Lys Lys Glu Val Ala Ser Lys Thr Glu
85 90 95

Thr Asp Pro Cys Asp
100

<210> 31
<211> 348
<212> DNA
<213> Human immunodeficiency virus

<220>
<221> CDS
<222> (1)..(348)

<400> 31
atg gat cca gta gat cct gag atg ccc cct tgg cat cac cct gga agt 48
Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser
1 5 10 15

cag ccc cag acc cct tgt aat aag tgc tat tgc aaa aga tgc tgc tat 96
Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr
20 25 30

cat tgc tat gtt tgt ttt gca agc aag ggt ttg gga atc tcc tat ggc 144
His Cys Tyr Val Cys Phe Ala Ser Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

agg aag aag cga cgg aga cca gcc gct gct gcg agc cat cca gat aat 192
Arg Lys Lys Arg Arg Pro Ala Ala Ala Ser His Pro Asp Asn
50 55 60

caa gat cct gta cca gag caa ccc cca tcc atc acc aac agg aag cag 240
Gln Asp Pro Val Pro Glu Gln Pro Pro Ser Ile Thr Asn Arg Lys Gln
65 70 75 80

aaa cgc cag gag gaa cag gag aag gag gtg gag aag gag aca ggc cca 288
Lys Arg Gln Glu Gln Glu Lys Glu Val Glu Lys Glu Thr Gly Pro
85 90 95

ggg gga tac cct cgc cgc aag gat tct tgc cac tgt tgt aca cgg acc 336
Gly Gly Tyr Pro Arg Arg Lys Asp Ser Cys His Cys Cys Thr Arg Thr
100 105 110

tca gga caa taa 348
Ser Gly Gln
115

<210> 32
<211> 115
<212> PRT
<213> Human immunodeficiency virus

<400> 32

Met Asp Pro Val Asp Pro Glu Met Pro Pro Trp His His Pro Gly Ser
1 5 10 15

Gln Pro Gln Thr Pro Cys Asn Lys Cys Tyr Cys Lys Arg Cys Cys Tyr
20 25 30

His Cys Tyr Val Cys Phe Ala Ser Lys Gly Leu Gly Ile Ser Tyr Gly
35 40 45

Arg Lys Lys Arg Arg Arg Pro Ala Ala Ala Ser His Pro Asp Asn
50 55 60

Gln Asp Pro Val Pro Glu Gln Pro Pro Ser Ile Thr Asn Arg Lys Gln
65 70 75 80

Lys Arg Gln Glu Glu Gln Glu Lys Glu Val Glu Lys Glu Thr Gly Pro
85 90 95

Gly Gly Tyr Pro Arg Arg Lys Asp Ser Cys His Cys Cys Thr Arg Thr
100 105 110

Ser Gly Gln
115

<210> 33

<211> 20

<212> PRT

<213> Human immunodeficiency virus

<400> 33

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
1 5 10 15

Gln Pro Lys Thr
20

<210> 34

<211> 20

<212> PRT

<213> Human immunodeficiency virus

<400> 34

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val

1

5

10

15

Cys Phe Ile Thr
20

<210> 35
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 35

Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys
1 5 10 15

<210> 36
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 36

Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln
1 5 10 15

<210> 37
<211> 15
<212> PRT
<213> Human immunodeficiency virus

<400> 37

Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val Ser Leu Ser
1 5 10 15

<210> 38
<211> 21
<212> PRT
<213> Human immunodeficiency virus

<400> 38

Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr His Gln Val
1 5 10 15

Ser Leu Ser Lys Gln
20

<210> 39
<211> 16

<212> PRT

<213> Human immunodeficiency virus

<400> 39

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Ser Arg Gly Asp
1 5 10 15

<210> 40

<211> 14

<212> PRT

<213> Human immunodeficiency virus

<400> 40

Pro Thr Ser Gln Ser Arg Gly Asp Pro Thr Gly Pro Lys Glu
1 5 10